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POSTER: β -Variational AutoEncoder and Gaussian Mixture Model for Fault Analysis Decision Flow in Semiconductor Industry 4.0

Failure analysis (FA) is key to a reliable semiconductor industry. Fault analysis, physical analysis, sample preparation and package construction analysis are arguably the most used analysis activity for determining the root-cause of a failure in semiconductor industry 4.0. As a result, intelligent automation of this analysis decision process using artificial intelligence is the objective of the Industry 4.0 consortium. The research presents natural language processing (NLP) techniques to find a coherent representation of the expert decisions during fault analysis using β-variational autoencoder (β-VAE) for space disentanglement or class discrimination and Gaussian Mixture Model for clustering of the latent space for class identification.

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